

CORRES. CONTROL
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Department of Energy

ROCKY FLATS PROJECT OFFICE
10808 HIGHWAY 93, UNIT A
GOLDEN, COLORADO 80403-8200

04-DOE-00722

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ADMIN. RECORD	X	X
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Reviewed for Addressee
Corres. Control RFP

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Date

By

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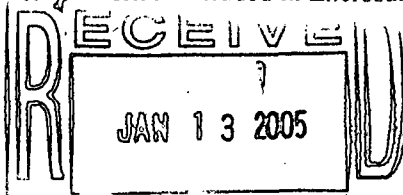
Mr. Steven H. Gunderson
Rocky Flats Cleanup Agreement Project Coordinator
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

Dear Mr. Gunderson:

Please find the Facility Disposition Rocky Flats Cleanup Agreement Standard Operating Protocol (RSOP) notification letter for the Type 2 facilities Building 883 and Slab 879. This notification invokes the RSOP for demolition of the facility.

- This demolition activity will utilize a combined RSOP strategy for demolition encompassing all activities required to demolish Buildings 883 and 879.
- The portions of the building that meet unrestricted release will be demolished in accordance with the *RSOP for Facility Disposition*. See *Enclosure 1 Building Demolition Description with Conditions*.
- This notification and *RSOP for Component Removal, Size Reduction, and Decontamination Activities* notification agreed to by the Colorado Department of Public Health and Environment (CDPHE) on January 9, 2002, which began the initial work. Further decontamination issues have lead to a need to invoke an additional notification with a six point analysis, Enclosure 2. This approach is due to residual contamination in the expansion joints and pits, and the potential to encounter groundwater during the slab and pit removal. Although the 879 slab is not associated with an Individual Hazardous Substance Site, it will also remain in place and be removed with the 883 slab since pre-characterization efforts of the soil under the slab have not been completed.
- This notification does not include the slab for Building 883. The slab will remain in place and protected until the entire building has been demolished; the slab will be removed in accordance the *RSOP for Environmental Remediation*, Notification 05-04 (in preparation).

This work will be conducted by Kaiser-Hill, Company, LLC (K-H). The requirements, methods, controls, and processes outlined in both RSOPs will be followed. This work will be conducted in accordance with the work control documentation prepared by K-H and its subcontractors. The exact methods, process and progress of the activities will be communicated to the Department of Energy and Lead Regulatory Agencies through the consultative process. A level one schedule of the work is included in Enclosure 3.



ADMIN RECORD

B883-A-000033

Mr. Steven H. Gunderson
04-DOE-00722

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Progress, status, and work planning will continue to be conducted in accordance with the consultative process at biweekly status meetings for this project. The project will not implement this notification until the following have been completed or obtained:

- CDPHE approval of the notification;
- CDPHE approval on the appropriate Pre-Demolition Surveys Reports and/or radiological and beryllium surveys for the areas that do not meet the unrestricted release criteria.

Questions may be directed to Gary Morgan, Rocky Flats Program Management, at (303) 966-6003.

Sincerely,



Joseph A. Legare, Director
RFPO Project Management

Enclosure

cc w/o Encl.:

D. McCranie, HQCPM, RFPO
S. Nesta, K-H RISS Env
C. Freiboth, K-H RISS D&D
K. Wiemelt, K-H RISS D&D
M. Aguilar, USEPA
D. Abelson, RFCLOG

cc w/Encl.:

G. Morgan, RFPM, RFPO
Administrative Record

Building 883 Demolition Strategy

Building 883 is a high-bay single story structure with a thirty-eight foot ceiling, has a partial basement, and a small second floor on the north and south ends. The structure covers 76,500 square feet. An underground reinforced concrete tunnel connected Building 883 with Building 881. This tunnel has been blocked on both the north and south ends with cinder block walls during the Building 881 decommissioning, meets unrestricted release criteria, is expected to be greater than three feet below final grade, and will remain in place.

The facility has three functional divisions referred to as Sides A, B, and C. The original construction was designed with two functional areas to prevent cross-contamination events (Sides A and B), and Side C was added to facilitate the manufacture of armor plates for tanks. Original construction took place between 1956 and 1957. Four additions have been built since the original construction in 1956:

- 1958, the Annex, increased storage capacity added on the east side,
- 1968, increased the area and manufacturing capacity of the high-bay and low-bay,
- 1972, Valve House addition, built to house the main steam valves, and
- 1985, added manufacturing space (Side C) on the west side of the structure to accommodate the manufacture of armor plates.

The building is set on concrete foundations composed of individual spread footings, concrete pedestals, concrete grade beams, combined footings, and foundation walls. The Building 883 structure is constructed of structural steel framing for the exterior walls and roof, and is built on concrete slabs placed on grade. The steel framing is covered with corrugated cement asbestos panels on the exterior, and most of the interior perimeter walls are covered with painted cement asbestos panels. The roof is metal decking with built-up roofing material.

The floor slab in the basement is an eight-inch thick wire mesh reinforced concrete slab on grade. The first floor slabs are constructed of six-inch thick wire mesh reinforced concrete slab on grade, and the first floor over the basement area is six-inch reinforced concrete. The heavy manufacturing equipment is placed on isolated concrete pads/pedestals where appropriate.

Building 883 was designed as a manufacturing facility for the rolling and forming of enriched uranium, depleted uranium, binary metals, and beryllium. Operations included rolling, shearing, forging, pressing, grinding, punching, bending, welding, heating, annealing, and cleansing. Also included were the inspection, non-destructive testing, weighing and shipping of parts fabricated in the facility. Operations in the facility included:

- Depleted uranium ingots were hot rolled and formed into various weapons parts, and manufacture of weapons parts from enriched uranium occurred from 1957 to 1964.
- Binary metal ingots were heated in an argon atmosphere, and rolled into sheets used to manufacture weapons parts.

- Stainless steel encased beryllium ingots were heated and rolled into sheets. The stainless sheet was removed, and the beryllium was rolled into a specific thickness, heat-treated, and pressed into the desired shapes.

Operations continued in the facility until 1994, when all operations ceased.

Facility decommissioning was initiated 2002 in accordance with the *RSOP for Component Removal, Size Reduction and Decontamination Activities*. Loose and fixed equipment have been removed. The building was pressure washed with water and a degreaser to initiate decontamination activities. The pressure washing was to remove the gross beryllium contamination for worker safety purposes; however, after the pressure washing was complete, the uranium and beryllium contamination was reduced substantially and on elevated areas brought to unrestricted release.

C-side, the annex and a portion of the offices were removed under a separate RSOP notification. In the RSOP notification for the demolition of those areas, the demolition process included at least one pass with the shaving equipment on all contaminated floors. Since the majority of the slab contamination is in the cracks and expansion joints, shaving the slab will not substantially reduce the overall source term in the building prior to demolition. As a result, the floor in the remaining portions of the building will not be shaved unless significant levels of contamination are found on easily accessible surfaces. In addition, the intact original floor epoxy is more resilient to damage.

After these activities were completed, in-process beryllium and radiological surveys were conducted. The decontamination efforts were successful on the upper portions of the building with some exceptions, primarily on the slabs. There is a berm between the floor and wall that cannot be decontaminated. In addition, there are cracks and expansion joints in the slab, which contain contamination that is not accessible through scabbling. These results and activities were discussed with Colorado Department of Public Health and Environment (CDPHE) during bi-weekly status meetings, and there was a general agreement that the decontamination efforts had been exhausted and the demolition/removal will proceed as follows¹:

- All contaminated areas will be pressured washed.
- Equipment decontamination, dismantlement and application of fixative, as possible.
- In process surveys will be conducted on areas, including slabs and pits, with some residual contamination and fixative will be applied.
- Information on residual contamination will be provided to the Rocky Flats Environmental Technology Site (Site or RFETS) Air Quality Group for an assessment of potential air emission impacts during demolition.
- Pre-demolition surveys will be conducted on areas that meet unrestricted release.
- Final surveys will be conducted on areas that do not meet unrestricted release as necessary for waste characterization and work planning purposes.

¹ The sequence is a complete list of activities; some of the activities have already been completed, as indicated in the letter.

- All of the building will meet the unrestricted release criteria for removable contamination prior to demolition.
- Resource Conservation and Recovery Act units will be closed.
- Chemicals will be removed from these areas.
- Encapsulant will be applied as necessary to slabs, pits and equipment.
- Transite panels will be removed from the exterior of the building.
- Plywood and/or metal plates will be placed on the slab and around equipment pits, as dictated by radiological engineering.
- A reinforced tarp will be placed over the equipment remaining in the building.
- The portions of the building that meet unrestricted release will be demolished in accordance with the *RSOP for Facility Disposition*².
- The portions of the building that do not meet unrestricted release will be removed in accordance with the *RSOP for Component Removal, Size Reduction, and Decontamination Activities, Section 3.8*. Surveys will be performed to identify the boundaries of contamination surrounding the contaminated section of the shell, and a safety margin will be developed around the contaminated area. A safety margin is a boundary outlined around the contaminated area, up to where mechanical removal methods can be used prior to initiating cutting techniques.
- The slab will remain in place and metal plates will be placed over the areas that will be used for demolition and equipment removal access.
- Once the main portion of the building is demolished, a crane will be used to lift the equipment out of the pits for packaging and disposal.
- The pits will be re-surveyed and, if necessary, additional encapsulant will be applied
- The slab and pits will be removed in accordance with the *RSOP for Environmental Remediation*, and the soil characterization will be completed in accordance with the *Industrial Area Sampling and Analysis Plan*.

This work will be conducted by Kaiser-Hill, Company, LLC (K-H). The requirements, methods, controls, and processes outlined in both RSOPs will be followed. This work will be conducted in accordance with the work control documentation prepared by K-H and its subcontractors. The exact methods, process and progress of the activities will be communicated to the Department of Energy and Lead Regulatory Agencies through the consultative process. A level one schedule of the work has been enclosed.

This activity was discussed with the public on November 16, 2004, and an update will be provided on January 18, 2005.

The administrative record requirements for this activity include the following:

- Final Rocky Flats Cleanup Agreement (RFCA)
- RFETS Decommissioning Program Plan

² Due to the difficulties associated with waste segregation, building rubble will be handled as low level waste.

- RSOP for Facility Disposition
- RSOP for Component Removal, Size Reduction and Decontamination Activities
- RFCA Standard Operating Protocol for Environmental Remediation
- Pre-Demolition Survey Reports (PDSRs) Building 883 and 879
- Notification Letter and subsequent CDPHE correspondence, if appropriate

Progress, status and work planning will continue to be conducted in accordance with the consultative process at biweekly status meetings for this project. The project will not implement this notification until the following have been completed or obtained:

- CDPHE approval of the notification;
- CDPHE approval on the appropriate PDSRs and/or radiological and beryllium surveys for the areas that do not meet the unrestricted release criteria;

Section 3.8.1 of the *RSOP for Component Removal, Size Reduction, & Decontamination Activities* requires the following assessment:

- (1) Relative Cost – There is no relative cost for this activity. The contaminated areas cannot be removed prior to demolition because removal would cause a structural issue, or would require removal of portions of the slab, which increase risks to workers from hoisting, rigging, and falls and increases the potential for contamination spread to the area below the slab.
- (2) Structural Evaluation – The work package will be reviewed and signed off by a structural engineer.
- (3) Air Emissions – An analysis of the potential radionuclide emission modeling was completed for the Building 883 and 879 demolition and slab remediation project. CAP88-Pc was used for the model to estimate the dose to the most impacted public receptor. The highest modeled dose was 4.9 E-05 mrem/year, which is far below the monitoring threshold of 0.1 mrem/year in the Site Integrated Monitoring Plan and the 10 mrem/year standard from 40 CFR 61, Subpart H. The total activity for each uranium isotope listed in the SCO Package Data Sheets, a 10 percent damage ratio (assumed 10 percent of the fixed contamination will become removable during the demolition/remediation activities), and a 10^{-3} emission factor (both taken from the peer-reviewed Building 776/777 Air Modeling Technical Document) were used for the inputs to the CAP88-PC model.

Air monitoring will be performed in accordance with the requirements of the Site Integrated Monitoring Plan. The existing RFETS Radioactive Ambient Air Monitoring Program (RAAMP) sampler network will be used for ambient air monitoring during removal activities. The RAAMP sampler network continuously monitors airborne dispersion of radioactive materials from the Site into the surrounding environment. Work area monitoring will be conducted for worker health and safety as dictated by Industrial Hygiene and Radiological Engineering.

- (4) Dust Generation – An analysis of the potential emissions will be completed by the Air Quality Group. Dust and contamination control will include the application of fixative, water during removal, and placement of the contaminated materials in waste containers as soon as the material is size reduced. These measures will be included in the work package.
- (5) Impacts to Surface Water – It is anticipated that this activity will have a minimal potential for impacting surface water or basement areas of the building. The area around the contaminated portion of the building shell will be inspected to identify potential pathways for migration of contaminants, including roof and floor drains, cracks, seams, floor/wall intersections, and foundation drains. Pathways will be closed by covering or filling (e.g., plastic sheeting or grout). Surface water (i.e., stormwater run-on and run-off) will be controlled using standard construction methods, including silt fences, hay bales, and diversion ditches.

In accordance with the RFETS Erosion Control Management System Manual, an assessment of the area will be made and controls put in place prior to initiating demolition/removal. Placement of surface water controls will be prerequisites in the work package for demolition/removal.

- (6) Impacts to Migratory Bird – There are no birds nests associated with these areas, and continual walk downs will be completed until the demolition/removal is complete.

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